

**Conductivity by Electrode**  
**SM 18<sup>th</sup> / 19<sup>th</sup> / 20<sup>th</sup> Ed. 2510 B**

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Facility Name: \_\_\_\_\_ VELAP ID: \_\_\_\_\_

Assessor Name: \_\_\_\_\_ Analyst Name: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

**Relevant Aspect of Standards****Method  
Reference****Y****N****N/A****Comments***Records Examined:* SOP Number/ Revision/ Date \_\_\_\_\_ Analyst: \_\_\_\_\_

Sample ID: \_\_\_\_\_ Date of Sample Preparation: \_\_\_\_\_ Date of Analysis: \_\_\_\_\_

Is the conductivity instrument capable of measuring with an error not exceeding 1% or 1  $\mu\text{mho/cm}$ , whichever is greater?

2510B 2.a

Is the thermometer capable of being read to the nearest 0.1°C, and does it cover the range of 23 to 27°C?

2510B 2.b

For platinum-type electrodes, are new cells (not already coated and ready for use) cleaned with chromic-sulfuric acid cleaning mixture and platinized before use or whenever readings become erratic? (To platinize, immerse in a solution of 1 g chloroplatinic acid and 12 mg lead acetate in 100 mL water, connect to the negative terminal of a 1.5 V dry cell battery, and connect positive side of battery to a piece of platinum wire which is dipped in the solution. Apply enough current that a small amount of gas is produced, and continue until electrode is coated with platinum black.)

2510B 2.c.1

For platinum-type electrodes, is the electrode immersed in distilled water when not in use?

2510B 2.c.1

For nonplatinum-type electrodes (used in the field or for continuous monitoring), are cells calibrated by comparing sample conductivity with results obtained with a laboratory instrument?

2510B 2.c.2

Is 0.0100M potassium chloride used as a reference standard, with a known conductivity of 1412  $\mu\text{mhos/cm}$  at 25°C? (For cell constants not between 1 and 2  $\text{cm}^{-1}$ , other KCl solutions may be used, as listed in Table 2510:I.)

2510B 3.b

Is the cell constant determined as specified in the method, or is the meter adjusted to read 1412  $\mu\text{mhos/cm}$  (or other designated value) when using the reference standard, which is adjusted to 25.0  $\pm$  0.1°C?

2510B 4.a

Is sample temperature adjusted to about 25°C prior to measurement?

2510B 4.b

Is the cell rinsed with one or more portions of sample before measuring resistance or conductivity?

2510B 4.b

Notes/ Comments:

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Relevant Aspect of Standards	Method Reference	Y	N	N/A	Comments
Is the temperature of the sample recorded to $\pm 0.1^{\circ}\text{C}$ along with resistance or conductivity measurement?	2510B 4.b				
If resistance is measured, is conductivity at $25^{\circ}\text{C}$ calculated by the following formula? $k = \frac{(1,000,000)(C)}{R_m[1 + 0.019(t-25)]}$ where k = conductivity, $\mu\text{mhos/cm}$ C = cell constant, $\text{cm}^{-1}$ $R_m$ = measured resistance of sample, ohms t = temperature of measurement	2510B 5.a				
If conductivity is measured without internal temperature compensation, is conductivity at $25^{\circ}\text{C}$ calculated by the following formula? $K, \mu\text{mhos/cm} = (k_m) / [1 + 0.0191(t-25)]$ where $k_m$ = measured conductivity in units of $\mu\text{mhos/cm}$ at $t^{\circ}\text{C}$ , and other units are defined as above.	2510B 5.b				
If conductivity is measured with automatic internal temperature compensation, are readouts directly reported with the appropriate units?	2510B 5.b				
Are duplicates analyzed for 10% of samples, at least one per batch?	2020				

Notes/ Comments: